

=> d his

(FILE 'HOME' ENTERED AT 08:52:10 ON 29 AUG 2006)

FILE 'CA' ENTERED AT 08:52:23 ON 29 AUG 2006

L1 2007761 S (ABNORMAL? OR ANOMAL? OR PATHOG? OR CANCER? OR MALIGN? OR TUMOR?
OR ADENOMA OR CARCINO? OR DISEASE# OR PATHOLOGIC? OR NEOPLAS? OR
ADENOCAR? OR METAST?)

L2 486036 S L1(7A)(DETECT? OR DETERMIN? OR MONITOR? OR MEASUR? OR ASSAY? OR
ANALY? OR TEST? OR INVESTIGAT? OR STUDY OR CHARACTERI? OR
DIAGNOS? OR SCREEN? OR SENSE# OR SENSING OR SENSOR OR IDENTIF? OR
PROBE# OR PROBING OR ASCERTAIN? OR DISTINGU? OR ASSESS? OR
EXAMIN?)

L3 90836 S L1 AND(915 OR 433 OR 500 OR 45#)

L4 2982 S L2 AND(MICROWAVE OR MHZ OR MEGAHERTZ OR MEGAHZ OR (MEGA OR M OR
GIGA OR G) (W) (HERTZ OR HZ) OR GHZ OR GIGAHZ OR GIGAHERTZ OR
MHERTZ OR GHERTZ OR RADIOFREQUENC? OR RF OR(RADIO OR
CHARACTERISTIC) (2A)FREQUENCY OR RADIOMET?)

L5 258 S L3 AND L4

L6 232 S L5 NOT METASTAB?

L7 119 S L6 AND PY<2000

L8 91 S L7 NOT(ALLOY OR AAS OR SEASONAL OR CHROMATOG? OR VOLTAM?)

L9 86 S L8 NOT(OPTICAL OR SUPERCOND? OR SUPERPARA? OR LASER OR FOOD OR
INTERSTEL?)

L10 511 S L2 (6A)(MICROWAVE OR MHZ OR MEGAHERTZ OR MEGAHZ OR (MEGA OR M OR
GIGA OR G) (W) (HERTZ OR HZ) OR GHZ OR GIGAHZ OR GIGAHERTZ OR
MHERTZ OR GHERTZ OR RADIOFREQUENC? OR RF OR(RADIO OR
CHARACTERISTIC) (2A)FREQUENCY OR RADIOMET?)

L11 338 S L10 AND PY<2000

L12 96 S L11 AND(TISSUE OR SKIN OR ORGAN OR COLON? OR STOMACH OR LUNG OR
BREAST OR BRAIN OR BIOLOG? OR PATIENT)

L13 92 S L12 NOT(METASTAB? OR ALLOY OR AAS OR SEASONAL OR CHROMATOG? OR
VOLTAM?)

L14 89 S L13 NOT(OPTICAL OR SUPERCOND? OR SUPERPARA? OR LASER OR FOOD OR
INTERSTEL?)

L15 138 S L9,L14 NOT NMR

L16 112 S L15 NOT(SOLAR OR P 450 OR IMMUNOHIST? OR POLYMERAS? OR CURIE OR
SKIN DEPTH)

L17 98 S L16 NOT(CYCLOTRON OR SOIL OR RADIOACT? OR HEART(1A)DISEASE)

L18 1853 S (RETURN?(1A)LOSS OR REFLECT?(1A)POWER)

L19 426 S L18(6A)(DETECT? OR DETERMIN? OR MONITOR? OR MEASUR? OR ASSAY? OR
ANALY? OR TEST? OR INVESTIGAT? OR CHARACTERI? OR ESTIMAT? OR
SCREEN? OR SENSE# OR SENSING OR SENSOR OR IDENTIF? OR PROBE# OR
PROBING OR ASCERTAIN? OR DISTINGU? OR ASSESS? OR EXAMIN? OR
EVALUAT? OR QUANTITAT? OR QUANTIF?)

L20 353 S L18/TI,IT,ST

L21 104 S L19 AND L20

L22 61 S L18 AND(915 OR 433 OR 500 OR 45# OR 1350 OR 1800)NOT 45

L23 142 S L21-22 AND PY<2000

L24 152 S L18 (6A)(MICROWAVE OR MHZ OR MEGAHERTZ OR MEGAHZ OR (MEGA OR M
OR GIGA OR G) (W) (HERTZ OR HZ) OR GHZ OR GIGAHZ OR GIGAHERTZ OR
MHERTZ OR GHERTZ OR RADIOFREQUENC? OR RF OR(RADIO OR
CHARACTERISTIC) (2A)FREQUENCY OR RADIOMET?)

L25 12 S L23 AND L24

L26 210 S L18 AND(MICROWAVE OR MHZ OR MEGAHERTZ OR MEGAHZ OR (MEGA OR M OR

GIGA OR G) (W) (HERTZ OR HZ) OR GHZ OR GIGAHZ OR GIGAHERTZ OR
MHERTZ OR GHERTZ OR RADIOFREQUENC? OR RF OR (RADIO OR
CHARACTERISTIC) (2A) FREQUENCY OR RADIOMET?) /TI

L27 16 S L23 AND L26

L28 116 S L17, L25, L27

FILE 'BIOSIS' ENTERED AT 10:39:46 ON 29 AUG 2006

L29 509 S L28

L30 229 S L29 AND (MICROWAVE OR MHZ OR MEGAHERTZ OR MEGAHZ OR (MEGA OR M OR
GIGA OR G) (W) (HERTZ OR HZ) OR GHZ OR GIGAHZ OR GIGAHERTZ OR
MHERTZ OR GHERTZ OR RADIOFREQUENC? OR RF OR (RADIO OR
CHARACTERISTIC) (2A) FREQUENCY OR RADIOMET?) /TI, IT

L31 486888 S L2/TI, IT

L32 143 S L30 AND L31

FILE 'MEDLINE' ENTERED AT 10:47:45 ON 29 AUG 2006

L33 83 S L32

FILE 'CA, BIOSIS, MEDLINE' ENTERED AT 10:51:16 ON 29 AUG 2006

L34 294 DUP REM L28 L32 L33 (48 DUPLICATES REMOVED)

=> d bib, ab l34 1-294

L34 ANSWER 25 OF 294 BIOSIS on STN

AN 2002:129360 BIOSIS

TI **Microwave** method and system to **detect** and locate **cancers** in heterogenous
tissues.

AU Bridges, J. E. [Inventor]

CS Park Ridge, Ill., USA ASSIGNEE: INTERSTITIAL, INC.

PI US 5829437 19981103

SO Official Gazette of the United States Patent and Trademark Office
Patents, (**Nov. 3, 1998**) Vol. 1216, No. 1, pp. 143. print.

L34 ANSWER 29 OF 294 MEDLINE on STN

AN 1999052260 MEDLINE

TI Two-dimensional FDTD analysis of a pulsed **microwave** confocal system for
breast cancer detection: fixed-focus and antenna-array **sensors**.

AU Hagness S C; Taflove A; Bridges J E

CS Department of Electrical and Computer Engineering, University of
Wisconsin-Madison 53706, USA.. hagness@engr.wisc.edu

SO IEEE transactions on bio-medical engineering, (**1998 Dec**) Vol. 45, No.
12, pp. 1470-9.

AB A novel focused active **microwave** system is **investigated** for **detecting**
tumors in the **breast**. In contrast to X-ray and ultrasound modalities,
the method reviewed here exploits the **breast-tissue** physical properties
unique to the microwave spectrum, namely, the translucent nature of
normal **breast tissues** and the high dielectric contrast between malignant
tumors and surrounding lesion-free normal **breast tissues**. The system
uses a pulsed confocal technique and time-gating to enhance the
detection of tumors while suppressing the effects of **tissue**
heterogeneity and absorption. Using published data for the dielectric
properties of normal **breast tissues** and malignant tumors, we have
conducted a two-dimensional (2-D) finite-difference time-domain (FDTD)
computational electromagnetics analysis of the system. The FDTD
simulations showed that tumors as small as 2 mm in diameter could be

robustly detected in the presence of the background clutter generated by the heterogeneity of the surrounding normal **tissue**. Lateral spatial resolution of the tumor location was found to be about 0.5 cm.

L34 ANSWER 58 OF 294 CA COPYRIGHT 2006 ACS on STN

AN 128:138236 CA

TI Cell for measurement of complex permittivity of normal and cancerous **breast tissue**

AU Stelter, Jaroslaw; Wtorek, Jerzy; Polinski, Artur; Nowakowski, Antoni
CS Dep. Medical Ecological Electronics, Technical Univ. Gdansk, Gdansk, 80952, Pol.

SO Internationales Wissenschaftliches Kolloquium - Technische Universitaet Ilmenau (1997), 42nd(Band 2), 210-215

AB A measuring cell was developed and elec. impedance measurements at 103-107 Hz were performed with normal and cancerous **breast tissue**.

Cancerous tissues have higher **characteristic frequency** than normal ones. The time between sample acquisition and measurement is a crit. parameter, however.

L34 ANSWER 86 OF 294 BIOSIS on STN

AN 1995:459612 BIOSIS

TI The **measured** electrical properties of normal and **malignant** human **tissues** from 50 to 900 **MHz**.

AU Joines, William T. [Reprint author]; Zhang, Yang; Li, Chenxing; Jirtle, Randy L.

CS Dep. Elect. Eng., Duke Univ., Durham, NC 27708, USA

SO Medical Physics (Woodbury), (1994) Vol. 21, No. 4, pp. 547-550.

AB The electrical conductivity and relative permittivity of **malignant** and normal human **tissues** were **measured** at frequencies from 50 to 900 **MHz**. The measurements were made between 23 and 25 degree C using a network analyzer connected to a flat-ended coaxial probe that was pressed against the freshly excised **tissue** samples. The malignant **tissues** were of the following normal **tissue** origin: bladder, **colon**, kidney, liver, **lung**, lymph nodes, mammary gland, spleen, and testes. The normal **tissues** included: **colon**, kidney, liver, **lung**, mammary gland, and muscle. Normal **tissue** samples of bladder, lymph, spleen, and testes were not available. In general, at all frequencies tested, both conductivity and relative permittivity were greater in malignant **tissue** than in normal **tissue** of the same type. For **tissues** of the same type, the differences in electrical properties from normal to malignant were the least for kidney (about 6% and 4% average differences over the frequency range in permittivity and conductivity, respectively), and these differences were the greatest for mammary gland (about 233% and 577% average differences in permittivity and conductivity, respectively). To illustrate a potential use of these data in hyperthermia applications, frequency-selective heating of malignant **tissue** (modeled as a sphere) surrounded by host normal **tissue** is calculated from the measured electrical properties for certain **tissues**.

L34 ANSWER 89 OF 294 CA COPYRIGHT 2006 ACS on STN

AN 120:312564 CA

TI A sensitive low-power homodyne **reflectometer** for impedance measurements

at 0.25-1.0 GHz

AU Pieper, John B.; Price, John C.

CS Dep. Phys., Univ. Colorado, Boulder, CO, 80309-0390, USA

SO Review of Scientific Instruments (1994), 65(2), 445-8

AB The authors describe a single-sideband homodyne reflectometer for sensitive impedance measurements in the 1 GHz range of electronic devices at liq.-helium temps. and below. At 50-pW measurement power, the instrument is capable of resolving a fractional change of 10^{-5} in the impedance of a nominally 50 Ω resistive device with a measurement time of one minute. The authors include details of an application to a.c. magnetoconductance measurements on mesoscopic devices, and an in situ calibration method for this application.

L34 ANSWER 96 OF 294 CA COPYRIGHT 2006 ACS on STN

AN 118:183403 CA

TI **Cancer** therapy using **microwave** electromagnetic radiation associated with drugs

IN Holt, John Alfred Gorton

PA Australia

SO Eur. Pat. Appl., 13 pp.

PI EP 531031 A1 19930310 EP 1992-307687 19920821

PRAI GB 1991-19081 A 19910906

AB **Cancer** is treated by parenteral administration of an org. disulfide (cystine or penicillamine disulfide) and/or an oxidant (cumene hydroperoxide or tert-Bu hydroperoxide) and/or an org. sulfoximine, such as methionine sulfoximine, followed by **microwave** electromagnetic (400-450 MHz) irradiation of the **tumor** site.

L34 ANSWER 130 OF 294 BIOSIS on STN

AN 1991:205916 BIOSIS

TI **MICROWAVE RADIOMETRY IN THE DETECTION OF ESOPHAGEAL CANCER.**

AU LI E-Z [Reprint author]; ET AL

CS HUBEI TUMOR HOSP, WUCHANG

SO Zhongguo Zhongliu Linchuang, (1991) Vol. 18, No. 1, pp. 29-31.

LA CHINESE

AB A flow diagram of microwave radiation in layered human **tissues** was obtained basing on the principles of bioelectromagnetics and biomedical engineering. Some important problems related to the **detection** of esophageal **cancer** by Model 846 **microwave cancer detector** were also studied. As a result an appropriate method and a set of diagnostic criteria which would be processed by microcomputer were obtained. Of 67 cases examined by Model 846 detector, 17 of 21 cases of esophageal cancer were positive, a true positive rate of 81%, while 36 of 46 control cases were negative, a true negative rate of 78.3%. The results indicate that this method might be of great value in the screening and early diagnosis of esophageal cancer.

L34 ANSWER 134 OF 294 BIOSIS on STN

AN 1990:178527 BIOSIS

TI **EXPERIMENTAL ASSESSMENT OF PHASED-ARRAY HEATING OF NECK TUMORS.**

AU GROSS E J [Reprint author]; CETAS T C; STAUFFER P R; LIU R-L; LUMORI M L D

CS UNIV ARIZ, DEP RADIATION ONCOL, TUCSON, AZ 85724, USA

- SO International Journal of Hyperthermia, (1990) Vol. 6, No. 2, pp. 453-474.
- AB An investigation of phased-array **microwave** systems (PAMS) for non-invasively inducing hyperthermia, primarily in neck lesions, has been done with implication for applications at other sites such as lung and pelvis. Our general approach was to combine numerical and analytical approaches with parallel experimental studies. In this paper we will concentrate only on the experimental aspects. The object, such as a homogeneous cylindrical phantom or a neck phantom, was encircled with several standard applicators driven by a single source, but with relative phase and amplitude control over each applicator. The relative phases of the applicators were adjusted by using an implanted monopole antenna connected to an HP network analyser. Power was applied and the specific absorption rate (SAR) was determined by using split phantoms and thermography or by measuring temperature transients dT/dt , recorded by implanted thermometer probes. We found that at **915 MHz** for our applicators (SMA Co.) the centre of an 11 cm diameter muscle-like phantom heated to about 33% of the value at the surface in front of the applicator. Similarly, we were able to show significant SAR at the centre of realistically sized neck phantoms using four phased apertures of **915 MHz**. Furthermore, substantial improvement was observed if the frequency was lowered to about 400 **MHz**.
- L34 ANSWER 143 OF 294 BIOSIS on STN
 AN 1990:111298 BIOSIS
 TI APPLICATION OF ULTRASOUND TOMOGRAPHY IN THE DIAGNOSIS OF THYROID PATHOLOGY.
 AU BAL'TER S A [Reprint author]; PACHES A I; ANOKHIN B M; MIRONOVA G T; CHUBAROVA N V
 CS ALL-UNION ONCOL SCI CENT, ACAD MED SCI USSR, MOSCOW, USSR
 SO Voprosy Onkologii (St. Petersburg), (1989) Vol. 35, No. 8, pp. 920-924.
 LA RUSSIAN
 AB The paper deals with the characteristics of application of **microwave** computed tomography in **diagnosis** of most frequent **tumors** of the thyroid gland in 146 surgical cases. The role and scope of **microwave studies** carried out in dynamic **monitoring** thyroid **cancer patients** to assure early detection of metastasis and recurrence are discussed.
- L34 ANSWER 175 OF 294 MEDLINE on STN
 AN 88004492 MEDLINE
 DN PubMed ID: 2820732
 TI **Microwaves** in **breast cancer detection**.
 AU Edrich J
 CS Department of Radiology, Swedish Medical Center, Englewood-Denver, Colorado.
 SO European journal of radiology, (1987 Aug) Vol. 7, No. 3, pp. 183-93.
- L34 ANSWER 182 OF 294 CA COPYRIGHT 2006 ACS on STN
 AN 105:126912 CA
 TI Detection of extravasation of antineoplastic drugs by microwave radiometry
 AU Shaeffer, James; El-Mahdi, Anas M.; Hamwey, Albert E.; Carr, Kenneth L.
 CS Dep. Radiat. Oncol. Biophys., East. Virginia Med. Sch., Norfolk, VA,

23501, USA

- SO Cancer Letters (Shannon, Ireland) (1986), 31(3), 285-91
- AB Microwave radiometry may be used as a non-invasive technique for s.c. thermal sensing. This technique was capable of demonstrating extravasation of small vols. of fluids, including the antineoplastic agent adriamycin [23214-92-8], when these fluids were administered at room temp. in dogs. The rate of temp. drop upon extravasation was proportional to the flow rate. It is feasible that microwave radiometry may be useful as an alarm system to reduce serious complications which often accompany the extravasation of antineoplastic drugs.
- L34 ANSWER 215 OF 294 MEDLINE on STN
- AN 83170032 MEDLINE
- DN PubMed ID: 7167503
- TI Thermographic **detection** of human **cancers** by **microwave radiometry**.
- AU Shaeffer J; El-Mahdi A M; Carr K L
- SO Progress in clinical and biological research, (1982) Vol. 107, pp. 509-21.
- L34 ANSWER 228 OF 294 MEDLINE on STN
- AN 83155507 MEDLINE
- TI **Cancer detection studies** using a 4.7 Gigahertz radiometer.
- AU Shaeffer J; El-Mahdi A M; Carr K L
- SO Cancer detection and prevention, (1981) Vol. 4, No. 1-4, pp. 571-8.
- AB Our laboratory has begun to evaluate the **cancer detection** capabilities of a **microwave** thermographic unit that employs a 4.7 GHz radiometer. The technique is passive and noninvasive. The temperature sensitivity of the unit is less than 0.1 degrees C. Malignant tumors are often about 1 degree C warmer than normal **tissues**. Microwave radiometry can provide information related to subsurface temperatures, whereas infrared thermography is limited to surface temperatures. Positive results were obtained in four of six biopsy-proved primary carcinomas of the **breast**, in four of four **patients** with lymphoma, and in nine of ten women with recurrent **breast** cancer. Negative results were obtained in **patients** with deeply seated tumors such as in **lung**, liver, esophagus, femur, and humerus. Microwave thermography is a promising new method of noninvasive cancer detection, and the choice of a 4.7 GHz frequency may represent an improvement over units operated at other frequencies.
- L34 ANSWER 235 OF 294 BIOSIS on STN
- AN 1980:197898 BIOSIS
- TI **MICROWAVE THERMOGRAPHY IN THE DETECTION OF BREAST CANCER**.
- AU BARRETT A H [Reprint author]; MYERS P C; SADOWSKY N L
- CS DEP PHYS, RES LAB ELECTRON, MASS INST TECHNOL, CAMBRIDGE, MASS 02139, USA
- SO AJR (American Journal of Roentgenology), (1980) Vol. 134, No. 2, pp. 365-368.
- AB **Microwave** thermography, a method of **sensing** subcutaneous temperatures, was used in a **breast cancer** detection study of about 5000 female **patients**. The data were taken at wavelengths of 9.1 and 23 cm. Microwave thermography at 23 cm has true-positive and true-negative detection rates of 0.8 and 0.6, respectively, comparable to those of IR thermography (0.7) and inferior to those of xeromammography (0.9).

However, a potential advantage results if microwave and IR thermography are used together for screening, and if mammography is used only for follow-up on those **patients** who were positive on either. It is then possible to obtain true-positive and true-negative detection rates of 0.9 and 0.9, respectively, while only half the number of **patients** need be subjected to X-rays.

L34 ANSWER 269 OF 294 CA COPYRIGHT 2006 ACS on STN

AN 82:122911 CA

TI Nutrition and in vivo rotational motion. Microwave study

AU Webb, Sydney J.

CS Dep. Bacteriol., Univ. Saskatchewan, Saskatoon, SK, Can.

SO International Journal of Quantum Chemistry, Quantum Biology Symposium (1974), 1, 245-51

AB **Tissue** cultures of normal baby hamster kidney (BHK) and BHK tumor cells transformed by mouse sarcoma virus (MSV) and Ehrlich ascites cells, having different tumor producing capacities, and **tissue** slices of human mammary and **lung** carcinoma were examd. without any fixation processes. The addn., following their exposure to a given microwave field, having a d. of 50-100 mW/cm², the cells were cloned on agar media and implanted into susceptible animals to assess possible lethal effects. All the normal mammalian cells used absorbed frequencies of microwaves, between 50 and 90 GHz, which formed a series sepd. by 2.0 and 2.5 GHz, resp. The frequencies absorbed by the tumor cells appeared to follow 2, and perhaps 3, series sepd. by 1.9, 2.3, and 2.7 GHz, resp. Moreover, as a given strain of cell went from highly tumorigenic to nontumorigenic, the strength of attenuation in the 2.3 and 2.7 GHz series of frequencies absorbed decreased and attenuation of frequencies in the 2.5 GHz series occurred or increased. The irradiation of both the BHK and Ehrlich tumor cells with each of 2 frequencies in the 2.3 GHz series resulted in a decrease in their tumorigenicity but not viability. An in vivo movement, possibly of water or other small mols., in mammalian cells thus seems to interact with a set series of electromagnetic frequencies and is quantized with only certain energy transitions, from 1 quantum level to the next, allowable. The difference between normal and tumor cells seems to reside in their resp. phys. rather than chem. characteristics with det. in vivo motions, and hence, structural architecture. This may also provide a method for **identification** of **tumor** cells using **microwave** spectroscopy.

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STN INTERNATIONAL LOGOFF AT 10:54:21 ON 29 AUG 2006